

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

March 14, 2007 Meeting

FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Robin Harkless

The following notes are a summary of issues that are intended to point out future actions or issues that may need further discussion at upcoming meetings. These notes are not intended to be the “record” of the meeting, only a reminder for TMT members.

Grant County PUD Update: Priest Rapids Operations

Russell Langshaw, Grant County PUD, updated TMT on Priest Rapids operations. The information was linked to the TMT agenda. He reported that 70 kcfs is the critical elevation, and the project was below the minimum for 22 hours, mostly between February 17-23. Current temperature units were currently at 880 and expected to reach 1000 around April 1, during which protection flows for emergence will begin. Russell will continue to provide updates to TMT throughout the emergence.

Water Supply Forecasts

Cathy Hlebechuk shared water supply forecast information from the COE's and National Weather Service's data, which she noted would be posted in the next few days. The March forecast for The Dalles was up slightly, at 88.3 MAF. Lower Granite was up slightly to 17.3 MAF. Libby was slightly down at 6.5 MAF. Dworshak was up slightly to 2.2 MAF. Grand Coulee and Hungry Horse were down slightly at 63 MAF and 2.1 MAF, respectively. The NRCS snow pack for the Columbia River basin showed slightly above average snow pack in Canada, near normal March snow pack at Grand Coulee and below average snow pack (81%) in the Snake basin above Ice Harbor.

Summary of Columbia River Flood Control Elevations/Shifts

Ken Soderlind, COE, shared information on expected flood control shifts at Dworshak and Grand Coulee, noting that a Brownlee shift is not expected to occur. The Dworshak flood control elevations are: 1560.3' for March, 1571.6' for April 15, and 1555.5' end of April. Given current conditions and forecasts from ESP and STP runs, the COE anticipates a shift in volume from Dworshak to Grand Coulee to maintain local flood control at Dworshak, the Tri-Cities area, and Vancouver. A caveat was included that if the forecasts change, adaptive management will be used to operate the projects.

A comment was shared that updated ESP data would be useful – the runs include information as current as 1992. It was also clarified that a Dworshak to Grand Coulee shift would be an even, ‘one for one’ operation.

Next steps include checking in on current conditions at the March 28 TMT meeting, and looking at April final forecasts at Dworshak on April 2 and Grand Coulee on April 7. All will continue to monitor conditions and if a significant deviation from the forecast is observed, adaptive management will be used. Idaho expressed support for the shift this

year as it meets all needs of the system. He encouraged the action agencies to use caution in drafting Grand Coulee if there is any concern that the project will not refill.

Spring Creek Hatchery Release Report

Dave Wills, USFWS, reported that 6.6 million fish were released from the Spring Creek hatchery on March 5, and 1.2 million were released on March 7. He reported that while the fish were healthy upon release, the mortality rate of the first release increased as high as 8%, above the normal 1.5% rate seen in past years. This information initiated a TMT call on Friday, March 9 (for discussion see notes linked to the March 9 agenda) followed by further monitoring and a check in by Dave Wills, the COE and the Fish Passage Center over the weekend. Mortality rates dropped back to normal levels by Saturday afternoon. The cause of the increase is still unknown, and the COE and others continue to investigate. FPAC members and NMFS biologist Gary Fredericks discussed the possibility that light switches from fluorescent to a dimmer LED light near the passage route, as well as more turbulent passage through the gatewell at Bonneville could have been the cause, which is at this point speculation.

ACTION: The USFWS will share results of a disease analysis done on the hatchery fish with TMT when they are available.

A question was asked about the disparity in numbers between the two release groups this year. Dave responded that a spill operation had been previously anticipated for one release, and due to the forecast, spill was presumed to be initiated for the first release. Discussions are continuing in the region about the potential for future re-programming and all agreed something needs to be done to address this recurring issue.

B2 Corner Collector Outage/Staff Gauge Removal

Bernard Klatte, COE, reported on three needs requiring special operations at Bonneville dam: removal of entrances to fishways on the Washington side prior to adult returns; corner collector 'mattress' work; and collection of pizometers. The COE discussed with FPOM and there were no concerns raised with the recommendation to complete all three on March 22 during a maximum four hour operation of 12' tailwater and corner collector closure. TMT did not object to this proposal. The COE will issue a teletype on March 19 noticing the planned operation, at 1200-1600 hours on March 22.

Outages on the Snake River

The COE is developing a schedule for maintenance on Lower Snake projects during the spring and summer, likely requiring unit outages. This information will be more fully presented at the next TMT meeting.

Operations Review

Reservoirs – Grand Coulee was at elevation 1278.1', with an end of March flood control elevation target of 1272.5'. The April 10 target is 1259.2'. Hungry Horse was at 3531.26', inflows were up with additional snow melt, and was targeting a March 31 elevation of 3535.1' and April 10 target of 3533.4'. Libby was at elevation 2389' and targeting an end of March elevation of 2395.5'. Dworshak was at 1546.7' and had 19.7

kcfs inflows (an increase) and operating at minimum outflow, targeting 1555.5' end of March, with a likely shift to 1560.3'. Lower Granite inflows were 55 kcfs, and Bonneville was averaging 150 kcfs. Montana noted their interest in understanding and coordinating with the COE on setting VARQ targets, with an overall interest of meeting fisheries and refill needs. Montana stated its desire for a gradual ramp down of Libby this year and would like to coordinate with the COE ahead of the summer season. The COE reminded all that it will operate to a strict VARQ this year and will continue to coordinate with its regional partners.

Fish – Paul Wagner, NOAA, noted that a small number of yearling chinook have been observed early, possibly holdover fish. Russ Kiefer, Idaho, offered that increased runoff could also be the cause of the observed yearlings, and Kyle Dittmer, CRITFC, added that above average temperatures likely contributed to the early arrival.

Bernard Klatte reported that Robert Stansell, COE, develops weekly status reports on sea lion activity below Bonneville and these reports will be linked to the TMT web page. To date, 9 stellars, 10 California sea lions and 1 harbor seal were observed. Predation was 153 salmon and steelhead, 352 sturgeon, 8 lamprey, and 2 smolts since counts began.

Power – Nothing to report

Water quality – Jim Adams, COE, reported no TDG exceedances.

Next Meeting, March 28, 9am-noon

Agenda items include:

- Priest Rapids Update
- Flood Control Shifts
- Snake River Outages
- Chum Emergence Report – Rick Kruger will distribute prior to the meeting
- MOP Operations
- WMP: Draft Spring/Summer Update
- Spring Spill/Transport Operations

**Columbia River Regional Forum
Technical Management Team Meeting
March 14, 2007**

1. Welcome and Introductions

Today's TMT meeting was chaired by Cathy Hlebechuk and facilitated by Robin Harkless, with representatives from COE, USFWS, BPA, NOAA-F, CRITFC, PNGC, BOR, and the states of Idaho, Montana, Oregon and Washington in attendance, either in person or by phone. The following is a summary (not a verbatim transcript) of the topics discussed and decisions made at the meeting. Anyone with questions or comments about these notes should provide them to the TMT chair or bring them to the next meeting.

2. Review of Meeting Minutes

Re: Spring Creek SOR #2007-02, Dave Wills (USFWS) requested a change to the Feb. 28 official minutes on page 8, second paragraph from the bottom of the page. Official testing began in 2004, not 2000.

3. Grant County Fall Chinook Emergence

Russell Langshaw (Grant County PUD) gave a presentation based on a slide which would be posted to the TMT website. Currently, Grant County PUD is in 2007 post-hatch operations phase, which essentially means maintaining critical elevation through March 12. Critical elevation is 70 kcfs, with 1,944 hours since hatching, 22 hours of which were below critical elevation. The minimum flow was 67.4 kcfs, 2.6 kcfs short. This translates to a few inches below critical elevation at Vernita Bar. Of the 22 hours below critical elevation, 20 occurred between Feb. 17-23, when low inflows allowed a fine margin for error.

Currently, Hanford Reach is at 880 temperature units, which means Chinook emergence can be expected to begin around April 1 (when the cumulative temperature units reaches 1000). When this occurs, the Vernita Bar protection flows will begin, Langshaw said.

4. Water Supply Forecasts

The Dalles water supply forecast is at 88.3 maf for April-August, which is 95% of normal, same as the February forecast, Cathy Hlebechuk (COE) said. The Lower Granite water supply forecast for April-July is 17.3 maf, 80% of normal, which is slightly higher than the February forecast. The Libby forecast is 56.5 maf for April-August, 103% of normal, which is slightly less than the February forecast. The Dworshak forecast is 2.2 maf for April-July, 82% of normal, up 3% from the February forecast. Grand Coulee is 63 maf for Jan-July, 100% of normal, down 2% from the February forecast. The Hungry Horse

forecast is 2.1 maf for January-July, 97% of normal, which is 1% less than the February forecast.

The Snake Basin snow forecast is the lowest in the region, Hlebechuk noted. Castlegar has the maximum amount of snow on record. Overall, 2007 Canadian snowpack is slightly above average, compared to 2006 which was slightly less than what we have now, Hlebechuk said. Grand Coulee is almost normal for March, but snowpack in the Snake basin above Ice Harbor is 81% of average.

5. Flood Control Targets and Shifts

There will probably be a Dworshak flood control shift this spring, Ken Soderland (COE) reported. He showed the TMT a summary of Columbia River flood control, which includes flood control shift targets and dates for each project. The March 31 flood control target for Dworshak is 1,560.3', while its April 15 target is 1,571.6', and the April 30 target is 1,555.5'. The flood control shifting operation can cause Grand Coulee elevations to be depressed by a few feet. COE can shift a volume of water to Grand Coulee while maintaining Dworshak control for downstream flood centers Lewiston, Clarkston, the Tri Cities and Vancouver.

Soderland showed the TMT a table with 44 ESP targets all showing that 1,560.3' elevation at Dworshak can be easily achieved by March 15. The March 13 ESP inflows used in the table are based on 44 years of temperature data, which yielded 44 different inflow traces, Hlebechuk said. With the minimum flow of 1.5 kcfs out, the program calculated 44 different elevations. The full shift at Dworshak is 1,560.5'. All 44 years were within half a foot of 1,560.5' elevation according to this calculation, Hlebechuk said. The shift operation shows 1,560.3' for March 31 and 1,560' for April 15.

The shift operation will be constrained from April 15-30, when no more than 14 kcfs can be released from Dworshak without exceeding the gas cap, Soderland said. If there is a falling forecast in April, which happens often, the COE might need to release less than 14 kcfs or terminate the shift operation altogether in order to refill before June. Another possibility is a rising forecast. If that happens, COE could raise outflows above 14 kcfs, which would increase gas problems downstream, or it could do a deviation request, Soderland said.

One other thing could cause problems. Approximately 42% of years the initial controlled flow occurs between April 14 and 30. It's conceivable all reservoirs could be on minimum flows for downstream flood control, while 14 kcfs is being released at Dworshak for fish augmentation, Soderland said.

Tony Norris (BPA) asked why shift operations could affect June 30 refill. If Dworshak shifted flood control elevations are higher, wouldn't shifting improve

opportunities for refill? No, Soderland said. (WHY not? I DIDN'T UNDERSTAND HIS ANSWER)

Russ Kiefer (IDFG) asked, why stop inputting data after 1992, when more years of data are available? That's a question for the National Weather Service, Soderland said. Dave Benner (FPC) asked, is 73 kaf the shift operation at Dworshak only, or is Grand Coulee also down that much? Will it be an even shift? The allowable shift on March 31 is 73 kaf, and BOR accepted the full shift, John Roache (BOR) said. The allowable shift on April 15 is 244 kaf. This will be a two-step operation involving planning on March 31, then checking in on April 1 to see what's allowable, Paul Wagner (NOAA) said. The group agreed to revisit this issue at the March 28 TMT meeting.

We won't have April shift values until the March final forecast for Dworshak comes out around April 2, Hlebechuk said. The other part of the equation is the Grand Coulee forecast issued by the National Weather Service around April 7, Soderland said.

IDFG favors shifting because it's a good operation for fish in a year like this, and it's within the safe limits of flood control, Kiefer said. He asked the Action Agencies to consider making adjustments if conditions are significantly drier or wetter than average above Grand Coulee or Dworshak so that Grand Coulee isn't overdrafted in anticipation of being able to refill Dworshak. Roache agreed it's not necessary to wait for an official forecast to talk about this. Now seems an appropriate time to discuss meeting the April 10 target elevation in Grand Coulee. If there were no shift, Grand Coulee would be at 1,262' instead of 1,259.2', or a difference of 3' elevation. An increase in the April water supply forecast can cause a lot of problems with trying to draft down to the April 30 flood control elevation from the April 10 target elevation, Roache said. More information will be available by the next meeting.

6. Spring Creek Hatchery After-Action Report

On March 5, 6.6 million fish were released from the hatchery, and on March 9, another 1.2 million were released, David Wills (USFWS) reported. Jim Adams (COE) asked, why the discrepancy in numbers? Normally all fish are released at once, but as this year's release time approached, BPA, COE and the Services had a discussion regarding potential spill to replicate the 2004 study, Wills said. Several forecasts ago, USFWS coded wire tagged an equal number of fish in both releases in hopes of rain and spill, based on those discussions of the potential for another study, Wills said.

The tagged fish were healthy when they left the hatchery, but mortality rates at the Bonneville juvenile facility rose to 4% on Thursday, March 8, then to over 8% on Friday, March 9, which led to an emergency TMT conference call that afternoon. By the time this unusual level of mortality was recognized, the

second batch of fish had already been released from the hatchery. Mortalities peaked on Saturday at just under 12%, then declined to 2-4.5% per day since then, a level much closer to normal background levels of 1-2%. It appears that a single event killed a significant number of the juveniles, as the mortalities observed over the past few days have not been recent, Wills said.

SOR #2007-02, requesting 85 kcfs of spill, was the subject of the emergency TMT call. Based on discussions and additional information, COE decided to continue operating the corner collector and keep an eye on the mortality rate in the juvenile monitoring facility, Bern Klatte (COE) said. Meanwhile, fisheries biologist Gary Fredricks (NOAA) suggested a possible cause for the mortalities: the lighting at the dam had recently been changed from fluorescent bulbs to LED to save electricity. To pass through the turbines, the fish must find their way out of a gatewell through a 10-inch hole. Fredricks suspected the LED lighting was too dim for fish to find their way. The lights were changed on Saturday morning in time for the second group of fish to arrive.

Another change has recently been made in the project, Paul Wagner (NOAA) said. The gap between where fish leave the gatewell and enter the turbine environment has been reduced. Because passage through turbines is believed to be a higher mortality route, the gatewell structure has been modified to create a higher flow and more turbulent environment (TO DISCOURAGE FISH FROM TAKING THAT ROUTE?). The Spring Creek juveniles are small fish, and during the larger, more crowded migration, they could have exhausted themselves trying to find their way out, Wagner and Kiefer agreed. That could explain why the mortalities appear to have happened all in one day, and the second, smaller group of fish fared better than the first. It appears the second group has passed with little impact, Wills said. Dan Spear (BPA) wondered whether the mass of smaller, weaker fish passing all at once was more of a problem than the lights. Did the mortality rates decline before the lights were changed? Perhaps, but the only significant difference between this year and last is the lighting, Wills said. Last year, all the fish were released at once, and we didn't see this problem, Kiefer said.

Kiefer asked, what would it cost to reprogram the hatchery? That's a complicated issue being discussed by COE, BPA, the Services, and the *U.S. v. Oregon* parties, Wills said. No estimate is possible at this point. The group agreed to discuss the hatchery release again when all results of disease testing are available. Wills will let Harkless know when to put it on the TMT agenda.

7. Bonneville Corner Collector Outage and Staff Gage Removal

Bernard Klatte (COE) gave an update on three operational requests at Bonneville Dam for 22nd of March.

In early March, COE received a request for a 12' tailwater at Bonneville for 4 hours so project staff could remove old staff gages in the Washington shore entrances to fishways. Divers have been unable to remove the old gages, and they could impede adult passage, so they need to be removed before spring Chinook arrive. This request was denied in early March due to impacts to Spring Creek releases and chum salmon.

COE has also received a request to inspect the concrete mattress at the outfall. Preliminary information shows that erosion may be causing problems. This will require the corner collector to be closed for approximately 2-3 hours while divers perform the inspection. Also, a third request for a 12' tailwater at Bonneville for 4 hours would allow data loggers in the Ives Island area to be collected, downloaded, serviced, and redeployed prior to the initiation of spill season.

All three requests can be accommodated in one operation scheduled for March 22, Klatte said. This will require a maximum of 4 hours of 12' tailwater at Bonneville, with corner collector closure. FPOM has approved the request. Gas levels will not be an issue while the corner collector is closed. Representatives from ODFW, NOAA, USFWS, BPA, IDFG, and MDFG agreed to this plan.

8. Major Outages on the Snake River

Installation of fire protection equipment on individual turbine units on the Snake River is being scheduled. Jim Adams (COE) said. Most of the outages will be single-unit outages in April through June. One unit will be taken out of service at a time, probably at multiple projects. Each unit outage will be about 9 days in length. During late summer, outages in blocks of 2 to 4 units will occur to install additional fire protection equipment. The exact schedule of which units will be offline on what dates is being worked out. FPOM is aware of this, Klatte added.

Kiefer asked, is it possible to defer outages planned for spring migration season to summer work? That's probably not an option, as this is critical, Adams said. The first outage is scheduled for April 30 at Little Goose. The group agreed to discuss the outages further at the next TMT meeting.

9. Sea Lion Predation

Robert Stansell (COE) will circulate regular status reports to the TMT which will be posted to the TMT website, Bernard Klatte (COE) said. Now there are 9 Stellar sea lions, 10 California sea lions, and 1 harbor seal below Bonneville Dam. Between Jan. 8 and March 7, they took 153 salmon and steelhead, 8 lampreys, and 352 sturgeons, of which 55 were more than 5' long.

10. Operations Review

A. Reservoirs. Grand Coulee is at 1,278.1' with discharges to maintain a 13' tailwater below Bonneville and to achieve the March 31 flood control elevation, Roache said. The shifted flood control elevation for Grand Coulee is 1,272.5' for the end of March. The April 10 target elevation for Grand Coulee is 1,259.2'.

Hungry Horse is at 3,531.26', making releases for project minimums. The mainstem has come up, and inflows were 7k yesterday. Temperatures have been warm, and most of the water is from snowmelt. Projects will probably stay on minimum flows for a while. The end of March flood control elevation for Hungry Horse is 3,535.1', and the project is currently at 3,531.26'. Additional releases for flood control will probably not be necessary. Nevertheless, we'll have to keep an eye on inflows, Roache said. The April 10 target elevation for Hungry Horse is 3,533.4', and it's close to that now.

Libby is at 2,389' elevation, still on minimum flow, but inflows have gone up from 4 kcfs four days ago to 11 kcfs now. The end of March flood control elevation is 2,395.5', meaning it needs to rise 6.5'. Whether it will do that depends on inflows, which may drop, Hlebechuk said.

Dworshak is at 1,546.7', with 19.7 kcfs inflows. The end of March elevation for strict flood control is 1,555.5'; for flood control shifting, it's 1,560.3' with the expectation that it will get to that level and shift to Grand Coulee.

Lower Granite is at 55k of inflows, up from 30k four days ago. Bonneville has been discharging around 150k, but was up to 202k yesterday.

Brian Marotz (MDFG) asked about the end of month elevation based on a 2003 VARQ storage diagram. Is that a linear interpolation of volume translated to elevation? His concern was that a lot of water was drafted early in the season, followed by low inflow forecasts, which could lead to not meeting fishers' requirements in spring, or refill requirements later in the year. VARQ ends when you intersect the refill curve, and some adjustments may need to be made after refill to balance this out, he said. (EXPLAIN??) Regarding the possibility of a double peak operation with strict VARQ, Montana would prefer a gradual ramp-down after the spring freshet. If that's not possible, keeping flows above 9 kcfs during the trough between double peaks would minimize a lot of damage downstream. The COE will coordinate with Montana on Libby VARQ operations, Hlebechuk said.

B. Fish. The Spring Creek release is reflected in the numbers of fish passing Bonneville, Paul Wagner (NOAA) said. A few yearling Chinook have already passed which was a bit of a surprise. Dan Spear (BPA) asked, where are they coming from? Fall Chinook in general hold over, Rick Kruger (ODFW) said.

(MEANING THEY ARE KELTS WHO HIBERNATE WHERE THEY'VE SPAWNED?) We're also seeing movement of fish in drafts and tributaries, even though it's early, Wagner said. This could be an early season if the trend continues. There have been a few Chinook adults passing Bonneville, and steelhead seem to be waking up in terms of passage between projects.

C. Power. There is nothing to report, Robyn MacKay (BPA) said.

D. Water Quality. TDG levels at Warrendale gage are remaining steady at around 103%, Klatte said. Cascade Island has TDG levels of around 110%, but the levels do not appear to be cycling as they have in recent years.

Russ Kiefer has a new email address: rkiefer@idfg.idaho.gov.

9. Next TMT Meeting

The next meeting is scheduled for March 28, 2007. Agenda items will include a Priest Rapids update, flood control shifting, Snake River outages, a chum emergence report, minimum pool operations, the WMP spring/summer update, a review of spring spill and transport operations, and the usual operations review. The IT wants to comment on the WMP update in draft form, Harkless said. This meeting summary prepared by BPA contractor Pat Vivian.

Name	Affiliation
Cathy Hlebechuk	COE
John Roache	BOR
David Wills	USFWS
Paul Wagner	NMFS
Jim Adams	COE
Robyn MacKay	BPA
Kyle Dittmer	CRITFC
Dan Spear	BPA
Russ George	WMCI
Jennifer Miller	Susquehanna
Tim Heizenrader	Cascade
Terry Weeks	PNGC
Tony Norris	BPA
Bernard Klatte	COE-RCC
Russ Kiefer	IDFG
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